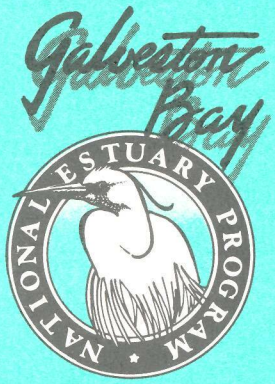
Toxic Contaminant Characterization of Aquatic Organisms in Galveston Bay: A Pilot Study



Galveston Bay
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GBNEP-20
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Toxic Contaminant Characterization of Aquatic Organisms in Galveston Bay: A Pilot Study

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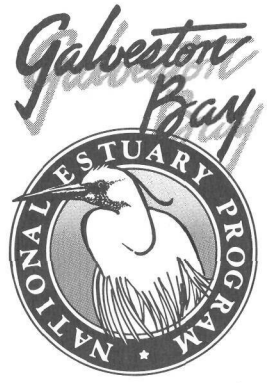

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FOREWORD

This final report, authored by Dr. James Brooks and colleagues at Texas A&M University, was commissioned by the Galveston Bay National Estuary Program (GBNEP) in early 1990. The purpose of the study was to acquire an initial characterization of the concentrations of toxic chemicals in fin- and shellfish from Galveston Bay and provide a preliminary estimate of the risks to human health posed by these chemicals. It became clear early in this study that the original objectives would require modification. For example, the limited spatial and temporal coverage in sampling and chemical analysis was imposed by funding constraints. Chemical analysis of finfish edible tissues and livers and shellfish edible tissues were conducted for numerous chemicals of concern including many toxic contaminants for which little or no human health effects data are available. The Spring floods of 1990 imposed real limits on the ability to collect samples representative of probable exposures to toxic contaminants. In addition, the sampling effort coincided with a major oil spill in the Bay. The resulting information was then combined with estimates of human seafood consumption rates to arrive at preliminary estimates of human health risks due to consumption of Galveston Bay seafood. An important caveat is that highly accurate data on seafood consumption (e.g., subsistence vs. market basket consumption and methods of seafood preparation) are not available and such information can dramatically affect risk estimates. The above factors currently limit the ability of the GBNEP to reduce many important uncertainties associated with the risk assessment of seafood contaminants. However, recognizing the limitations, we believe that this report provides much useful information to guide future risk assessments.

Dr. Brooks and his colleagues have performed all the required technical aspects of the project and constructively responded to peer review comments. Interpretation of human health risks associated with consumption of seafood that contains toxic contaminants is a complex issue. We believe that scientists play a critical role in performing the technical aspects of the risk assessment; however, they share with the citizens and their elected and appointed officials the responsibility for determining risk management policies, strategies, and plans (i.e., how the technical information with its uncertainties is used to regulate seafood consumption). Determining what is unacceptable risk is inherently a public decision-making process.

GBNEP wishes to remind the readers that, as citizens, they are an important voice in policy-setting, particularly through such vehicles as the National Estuary Program. To this end, it is appropriate for individual citizens to express their opinions regarding policies which may be affected by the

interpretation of data such as these. Mechanisms exist within the GBNEP, as well as through direct communications with government agencies and elected officials, for the concerns of citizens to be made known regarding specific policy issues.

Specifically with regards to this report, GBNEP wishes to notify the readers of the numerous uncertainties inherent in the estimates of human health risks. These uncertainties complicate the interpretation of the data, so we urge caution on the part of all readers to avoid "jumping to conclusions."

In summary, the reader is advised that no interpretation is offered in the document by either the authors or GBNEP regarding the significance of the risk estimates, and that there is much uncertainty in the estimates.

Adopted by the Management Committee
July 15, 1992